

**REMARKS/ARGUMENTS**

***Amendments in General***

1. The Applicant has amended the application to include the provisional patent application to which the present application claims priority. This amendment has placed this number in the first sentence of the application. A prior claim to this previously filed provisional patent application was already made and is reflected in the filing receipt of the present application. Applicant respectfully submits that the addition of the provisional patent application number into the first sentence of the application completes this claim for priority and respectfully requests acceptance of the same.
2. The specification of the application has also been amended to particularize that Figures 1A and 1B, 2A and 2B, and 3A and 3B are all directed to various embodiments of the present invention.
3. Claim 1 has been amended to include the limitations that were previously set forth in claim 2. In addition claim 1 has been amended to clarify that the system operates to prevent the dropping of rods by monitoring various characteristics and providing an alarm to an operator. Support for this amendment is found throughout the application and particularly in paragraphs 15 and 16 of the application as filed.
4. Claim 4 has been amended to correspond with the amended claim 1 this amendment adds no new matter to the specification and acceptance of this amendment is respectfully requested.
5. Claims 9-12 are new claims which have been added to the application so as to further clarify the features of the present invention which are claimed in the instant application. Support for these amendments are found throughout the application but particularly in paragraphs 14, 15, 16 and 17 of the application as filed.
6. These amendments add no new matter to the application and acceptance of these amendments is respectfully requested.

### **Standards for Patentability**

7. "An applicant for a patent is entitled to the patent unless the application fails to meet the requirements established by law. It is the Commissioner's duty (acting through the examining officials) to determine that all requirements of the Patent Act are met. The burden is on the Commissioner to establish that the applicant is not entitled under the law to a patent .... In rejecting an application, factual determinations by the PTO must be based on a preponderance of the evidence, and legal conclusions must be correct." *In re Oetiker*, 977 F.2d 1443, 1449, 24 USPQ2d 1443, 1447,24 USPQ2d at 1447 (Fed. Cir. 1992) (Judge Plager concurring).

8. "The precise language of 35 USC 102 that 'a person shall be entitled to a patent unless,' concerning novelty and unobviousness, clearly places a burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under sections 102 and 103." *In re Warner*, 379 F.2d 1011, 1016, 154 USPQ 173 (CCPA 1967), cert. denied, 389 U.S. 1057, reh'g denied, 390 U.S. 1000 (1968).

#### ***Claim Rejections - 35 U.S.C. § 101***

9. The Examiner has rejected claim 1 of the application on the grounds that the language of claim 1 fails to show how the aim of this claim is met and therefore the claim fails.

10. Claim 1 of the application has been amended to clarify that the present invention prevents the dropping of control rods in a system by monitoring this system and providing an alarm or signal to an operator.

11. As is described in the text of the specification, this method for monitoring provides significant advantages over other types of methods and systems that are currently utilized. As is described on page 5 of the application as filed, the prior art systems such as the system described in the '890 patent cannot detect the failure of the current which powers the rod holding devices to grip the rod holding devices. As a result, an event such as a fuse being blown in a gripper would not be noticed and thus when power is applied, the rods which are held by the gripper cannot be moved. The result can be an unbalance within the system and in some cases control rods actually being dropped. The dropping of such a rod can be catastrophic because it would substantially vary the rate of reaction within the reaction core.

#### ***Claim Rejections - 35 USC § 103***

12. The Examiner rejected claims 1,2, and 5 under §103(a) as being unpatentable (obvious) in view of Thompson when combined with Miller. The Examiner has held that combining the teachings of Miller which relate to the monitoring of electrical charges in internal combustion

engines together with the device which is taught in the Thompson device would produce the present invention. Applicant respectfully disagrees with the Examiner's analysis and requests that the Examiner's rejection be withdrawn in view of the amendments to these claims and the following arguments.

13. "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." MPEP § 706.02(j).

14. The law regarding obviousness is clear--any modification of the prior art must be suggested or motivated by the prior art. 'Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so.' [citation omitted] Although couched in terms of combined teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious "modification" of the prior art. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fitch*, 972 F.2d 1260, 23 USPQ2d 1780, 1783-4 (Fed.Cir. 1992), (in part quoting from *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)).
15. The *prima facie case* must be supported by evidence.

"The factual inquiry whether to combine references must be thorough and searching." It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with:

- conclusory statements such as those here provided do not fulfill the agency's obligation
- "Common knowledge and common sense," even if assumed to derive from the agency's expertise, do not substitute for authority where the law requires authority.

*In re Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002).

16. Neither of the references which have been pointed out by the Examiner contain a teaching or suggestion to combine or modify in the way that the Examiner has suggested. Therefore, Applicant submits that the present invention is not merely an obvious modification over the prior art.

17. Furthermore, the combination which has been suggested by the Examiner is distinct from the invention that is included in the amended claims. The amended claims are directed to a monitoring method for preventing nuclear rods from dropping which includes measuring induced electromagnetic force. None of the references that have been cited by the Examiner teach this feature, nor do any of these references teach the inclusion of any device or provide any reason for monitoring this feature. However, as the specification of the application explains this system of monitoring, providing a variety of advantages and features, which are not present in any of the prior art systems that are in place today.

18. As is described on page 5 of the application as filed, the prior art systems such as the system described in the '890 patent cannot detect the failure of the current which powers the rod holding devices to reach these items. If current or voltage is monitored alone, there is no way of indicating whether or not an event such as a fuse being blown in a gripper has taken place, until the current is applied to the gripper and at this point such a notification may be too late. Furthermore, the '890 system applies reduced voltage when a failure takes place essentially freezing things in their non-functional state rather than making arrangements to correct such a situation.

19. The present invention overcomes these issues by providing constant flow of current through the system and then measuring the negative phase of the induced electromagnetic current, which is created by the flow of current through the system. When this negative phase is absent a fault in the system has taken place. Because this monitoring is nearly constant, an operator can instantly know when a fault has taken place and take corrective measures to remedy this situation. The prior art does not teach or describe such a situation.

#### *New Claims 9-12*

20. Applicant has added new claims 9-12. These new claims are merely re workings of existing claims and material which were originally set forth in the Application. These new claims contain no new matter and acceptance of these amendments is respectfully requested.

Examiner Daniel L. Greene  
Serial # 10/788,504

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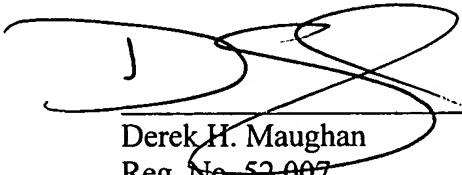
*Conclusion*

Reconsideration and allowance of the application as amended is respectfully requested.

If the Examiner feels it would advance the application to allowance or final rejection, the Examiner is invited to telephone the undersigned at the number given below.

DATED this 11<sup>th</sup> day of July, 2006

Very respectfully,



Derek H. Maughan  
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Examiner Daniel L. Greene  
Serial # 10/788,504

CERTIFICATE OF MAILING

I HEREBY CERTIFY that this correspondence is being deposited with the United States Postal Service on the below date as first class mail in an envelope addressed to:

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DATE: July 11, 2006

Brandy L. Potter  
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